

**BULLETIN**  
OF THE  
**VERMONT**  
DEPARTMENT *of* AGRICULTURE

*No. 21—March, 1915*

**How Vermont Maple  
Sugar is Made**

BY  
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**MIDDLEBURY COLLEGE LIBRARY**

Published quarterly by the Department of Agriculture of the State of  
Vermont. Entered as Second Class Matter at the Postoffice  
at St. Albans, Vt., under Act of August 24, 1912.



SUGAR MAPLE 125 YEARS OLD

*How*  
Vermont Maple Sugar  
*is* Made

By WALTER H. CROCKETT

THE HISTORY OF THE INDUSTRY FROM ITS BEGINNING BY THE  
INDIANS TO THE PRESENT DAY :-: :-: A STORY OF DEVELOP-  
MENT FROM PRIMITIVE CONDITIONS, WHEN MAPLE SUGAR WAS  
A HOUSEHOLD NECESSITY, TO MODERN CONDITIONS, WHEN IT  
IS MANUFACTURED TO SATISFY THE DEMAND FOR A LUXURY

The Maple Tree and How Maple Sap is Produced

Some Recipes for the Use of Maple Products

A List of Members of the  
Vermont Maple Sugar Makers' Association

*Published by the Department of Agriculture of the State of Vermont*

1915

## INTRODUCTION

This bulletin is issued for the two-fold purpose of making known certain facts regarding Vermont's most famous products,—maple sugar and syrup,—and also to bring producers and consumers of these products in closer touch with one another.

Probably no agricultural product lends itself so readily to direct dealings between producer and consumer. Being classed as a luxury its value in proportion to its weight is large enough so that it may be shipped by parcel post or by express and not have the transportation charge out of proportion to the original cost. Orders of sufficient size may also be transported by freight at less expense. This product will not spoil in warm weather or in cold if properly put up, and it will retain its original flavor for a long time. Any family in this country may, therefore, establish relations with a producer of these products in Vermont and purchase a yearly supply in the spring of the year with full expectation that there will be no loss from spoilage or any deterioration.

The Vermont Maple Sugar Makers' Association is an organization of some years' standing. It is made up of men who are the leaders in the maple sugar making industry in Vermont. It is fully believed that they know what good maple sugar and syrup are and know how to make them. The list of the members of this organization is published in full confidence that the names contained therein are those of men who will deliver to customers exactly what they agree to deliver and the sanction of the state department of agriculture is given to this list only upon such an understanding. If any customer should, in dealing with the men on this list, feel that he has a grievance or that he has not been dealt with fairly, it is requested that a complaint be at once made to the Commissioner of Agriculture. If the sugar or syrup is adulterated the offender will be punished to the full extent of the law and if they are below the standard guaranteed an investigation will be made upon statement of the facts.

We ask all customers, however, to make a careful study of this bulletin in order that they may know what good maple sugar and syrup are, what causes differences in color, flavor, etc., in order that complaints may not be made through misunderstanding.

E. S. BRIGHAM.

Commissioner of Agriculture.

St. Albans, Vt.

## VERMONT MAPLE SUGAR

Of all the sweets that man has discovered in a natural state, or has manufactured by processes of refining or blending, the most delicately flavored, the most supremely satisfying to the utmost refinement of taste, is maple syrup. If the figure of speech may be permitted in these days of an ever widening democracy, maple sugar and maple syrup are the reigning monarchs of the blood royal in the kingdom of sweets.

A test of more than one hundred years has demonstrated—and few, if any, will dispute the statement,—that Vermont, above all others, is the State where the finest maple sugar and syrup are made. The mention of maple products immediately suggests Vermont to the average individual, so closely are the two associated. It was John G. Saxe, a famous poet of an earlier day, who said that Vermont is famous for four things:

“Men, women, maple sugar and horses;  
The first are strong, the latter fleet,  
The second and third are exceedingly sweet,  
And all are uncommonly hard to beat.”

Wherever maple sugar is known, there the Vermont superiority is recognized. The Vermont product is used as a standard of comparison and the worth of the Vermont name on the label is fully appreciated by the many dealers in adulterated and spurious maple products.

Maple syrup has been called liquid sunshine. To the hard-headed, unsentimental individual, that expression might seem to be an example of the extravagant exuberance of the typical spring variety of poet; but in reality the expression will stand the prosaic test of the scientific laboratory. The sweetness of the sap stored in the maple tree depends in large measure upon the influence of the sunlight upon the leaves of the maple during the summer days preceding the spring sugar season. In some mysterious manner, known only to Nature, the green leaves, under the direct influence of the sun's rays, store up starch and sugar, and in the laboratory of the maple tree, drawing moisture from roots extending deep down to the marble and granite foundations of the Green Mountains, certain wonderful chemical processes are performed, whereby the sunlight and the water from the mountain springs, and the wholesome ingredients of the soil which give such a superior flavor to the products of Vermont farms and dairies and orchards, unite to make the maple sap out of which the sugar and the syrup are manufactured, that have made the Green Mountain State famous.



TAPPING THE GROVE



BOILING THE SAP

## THE SUGAR MAPLE

The maple is one of the most beautiful and stately of American trees. The size of its leaves, the spread of its branches and its symmetry of form, make it one of the most desirable shade trees. Its wood is valuable for a variety of purposes—too valuable from the point of view of those who desire to preserve the maples—and as a sugar-producing tree it is in a class by itself.

Of all the varieties of maple trees found in various parts of the world, and they number nearly seventy, Vermont produces seven. These are the sugar maple (sometimes known as the sugar or rock maple), the black maple, the silver maple, the red maple, the mountain maple, and the box-elder or ash-leaved maple. By far the best for sugar making purposes are the sugar maple and the black maple. The Vermont environment seems to be peculiarly adapted to the sugar maple and it is found at its best in this State.

The sugar maple is a long-lived tree. It is said that some trees on Vermont hillsides, still used for sugar making purposes, have been growing since the Pilgrim Fathers landed at Plymouth in 1620. A maple is seldom suitable for tapping before it is forty years old and twice that number of years makes it much more valuable. Although the tree is comparatively slow in its growth, it is easily propagated and is a sturdy tree. In a paper read before the Vermont Botanical Club a few years ago, J. A. Chapin, of Middlesex, told of cutting a maple, which, judging from its rings must have been from 200 to 225 years old. It must have been a tree of goodly proportions before Fort Dummer was built, and it may have seen many a band of captives from the Connecticut river settlements led down the Winooski valley along the old Indian trail on the way to Canada. A section of this old maple tree furnishes, in a way, a history of the maple sugar industry in Vermont from the very beginning, for it bears the marks of tapping for one hundred years. First come the marks of gashes with an axe, Indian fashion; next holes bored with an inch and a quarter auger; and still later a gradual reduction in the size of the holes made by augers and bits. It covers the period from the days of the pioneers to the present time, and it might be preserved with profit as a witness of the development of an important Vermont industry in its progress from an article of necessity to an article of luxury.

The greater part of the maple sugar of the United States is made in the six States of Vermont, New York, Ohio, Michigan, Pennsylvania, and New Hampshire, although the last census report showed that maple sugar or syrup was made in thirty different States. In addition to the six States mentioned, those reporting the manufacture of maple products were Maine, Massachusetts, Rhode Island, Connecticut, New Jersey, Indiana, Illinois, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota,

Nebraska, Kansas, Maryland, Virginia, West Virginia, North Carolina, Kentucky, Tennessee, Arkansas, Montana, and Washington. Few maple products are made south of Maryland and Kentucky and west of Missouri, Iowa and Minnesota. The maple sugar area, however, extends northward into the Dominion of Canada and Newfoundland. The sugar maple does not grow naturally in Europe.

### HOW MAPLE SAP IS MADE

Maple sap is composed of water, sugar, mineral ingredients like lime, potash, iron, magnesia, etc., and certain vegetable acids. The moisture in the soil dissolves and holds in solution certain of these mineral elements, and the roots of the tree draw them up, together with a large amount of water, through the living tissues of the tree, this moisture being transpired or breathed out through the leaves, much as living creatures exhale breath from their lungs. Until the moisture passes through the leaves, the sap is termed crude sap. But there is a breathing in as well as a breathing out. Air charged with carbonic acid passes through the leaves, and in some way yields to the crude sap its carbon, transforming it into what is known as elaborated sap. Even to scientists who have made a thorough study of this subject, the process of the storing and the sweetening of the maple sap is attended by much that is mysterious. This process of transformation has been likened to the miracle of turning water into wine.

It is known that the sugar content of the maple tree depends largely upon the leaf development and the amount of sunshine that the leaves absorb during the summer preceding the sugar season.

The sap contains from two to six per cent of sugar, and this sugar forms Nature's food for the growth of the tree. If a healthy maple is tapped in a reasonable manner, according to the best methods, it does not appear to deprive the tree of sufficient nourishment to injure its health or to check its development. Just before the leaves put out, after the roots begin to absorb water in considerable quantities, the tree contains the largest amount of moisture, as it is not able to throw off any of this moisture through the leaves. It is at this period in the spring when the sap flow is largest.

Experiments made a few years ago by the Vermont Agricultural Experiment Station showed that a maple tree about fifteen feet in diameter and fifty feet in height, had approximately 146,250 leaves in 1899, and that the same tree had 162,500 leaves in 1900. The ravages of worms made a difference in the leaf area of certain years. The leaves were counted on some of the branches and estimated on the others. The total leaf area represented 8,846



and 14,930 square feet, respectively, or a surface representing from one-fifth to one-third of an acre. The water content of the leaves was 71.6 per cent of the whole content. The weight of the water in the leaves of this tree was estimated at 240.2 pounds, and the total water content of the tree was said to be 1,220.57 pounds.

### CONDITIONS REQUIRED FOR SAP FLOW

In order to produce ideal conditions for a good sap flow alternate freezing and thawing are needed, moderately warm days and freezing nights. It is said that a temperature of 25 degrees at night and 55 degrees during the day, with damp northerly winds furnish ideal sugar weather. Within the cell walls of the woody tissues of the maple, gases are imprisoned. While the sap passes easily through these walls, the gases pass with difficulty, but changes of temperature cause an expansion or a contraction of the gases, which aids in producing an alternate pressure and suction, a sort of pump-like action in the vicinity of the tap hole.

Conditions of temperature must be just right to induce sap flow. If any person supposes that all that is necessary to obtain sap is to bore a hole in a tree and look for a gushing stream, like water from an artesian well, he will learn his mistake very soon after he enters a sugar place. Nature is very capricious, and does not easily yield her store of sweets. If the weather is too cold or too warm, if the wind is in the wrong quarter, if atmospheric conditions are a little awry, then no sap will be found in the buckets.

The periods of sap flow are known as "runs," and they vary in number as the season is good or poor. Most of the sap flows in the daytime but occasionally it flows at night. The opening of the sugar season comes in Vermont as the winter is breaking and the first signs of spring appear. When a crisp, clear morning, with air that is like a tonic, is followed by a day of unusual warmth, with a liberal melting of the snow, a man will say to his neighbor: "It begins to feel like a sap day." The sap season generally begins about the middle of March and continues until the third week in April, but it varies very widely with a late or an early spring. Sugar making has begun as early as Feb. 22nd and as late as the first week in April. The season lasts on an average about four weeks. The longest run on record included forty-three days, and the shortest eight days. The season ends when the leaf buds begin to swell. As the sap flow diminishes it becomes thicker and more stringy. This is due to the changing of the sugar in the sap into glucoses for the use of the tree. Of course the season begins and ends earlier in the Champlain and Connecticut valleys than in the elevated portions of the Green Mountain system.

## SUGAR MAKING BY THE INDIANS

History does not record the time or the manner of the discovery of the secret of maple sugar making, because this discovery presumably was made by the American Indians before history began to be written, perhaps many centuries before the white man came. The Indians are known to have made maple sugar prior to the year 1673. There are legends that tell of the breaking of the root of a maple tree which led to the discovery of the sweetness of the sap, and the catching of the sap, in which venison was boiled.

Rowland E. Robinson, whose Vermont dialect stories picture pioneer life in the Green Mountain State with a charm and an accuracy equalled by few, and surpassed by none, in an article in the *Atlantic Monthly* related this legend of the discovery of maple sugar:

"While Woksis, the mighty hunter, was out one day in search of game, his diligent squaw Moqua busied herself embroidering him some moccasins. For the evening meal of her lord she boiled some moose meat in the sweet water from a maple tree just by the wigwam. Becoming interested in her work, she forgot the moose meat, and the sweet water boiled away to a thick brown syrup. When Woksis returned he found such a dainty morsel ready for his supper, as he had never before tasted. The great chief eagerly devoured the viand, licked the kettle clean and then went out and told his tribe that Kose-Kus-beh, a heaven sent instructor, had taught Moqua how to make a delicious food by boiling the juice of the maple. And the discovery soon became known among all the Indians."

The Indian method of tapping trees was to make a diagonal incision in the trunk of the maple, perhaps with a tomahawk, into the lower end of which was inserted a reed, or concave piece of bark, through which the sap was conveyed into a bark trough or other receptacle. The Indian method of boiling was to drop hot stones repeatedly into the clay or bark vessels containing the sap. The journals of a prisoner, made captive by the Indians in 1755, relate the fact that the natives stored sap in large troughs made of elm bark, often of 100 gallons capacity.

## PIONEER SUGAR MAKING

The early white settlers to a considerable extent followed the Indian methods of sugar making, but substituted wooden spiles or spouts for the reed or bark spouts, and used iron or copper kettles, usually the former, for boiling purposes. It was necessary for the pioneers to produce nearly everything that the family needed for

food or clothing, and maple sugar was the only sugar most of them could obtain, white sugar being a luxury beyond the reach of most of the early settlers. There was no market for maple sugar at that time and only enough was produced to satisfy the needs of the producer.

In pioneer days the first requirement was land to cultivate, and forest elimination rather than forest conservation was considered a necessity. In pursuance of this policy thousands of great sugar maples were burned by the early settlers, not only to clear the land, but also for the reason that from the ashes could be produced a remarkably fine grade of potash salts, which, in many instances, was the only commodity which the pioneer could turn into ready money, most business being conducted by a system of barter.

The primitive methods of sugar making included catching the sap in wooden troughs, boiling it out of doors, usually in the useful potash kettle, suspended on a pole between two forked stakes. Ashes, twigs, pieces of bark, and melting snow or drops of rain would blow or fall into the boiling sap kettle, and all these foreign substances contributed to the dark color and strong flavor which some good people still associate with maple sugar. Not a few who see the light-colored maple sugar produced by the best Vermont sugar makers of the present day, think the product must be adulterated because its color is so light, or, at least, that it does not possess "that good maple taste" with which they were familiar in the days of their youth. As a matter of fact the high grade modern product contains all the real "maple" flavor, and the flavor that is lacking is that of ashes and bark and other impurities which, with certain chemical changes, cause the dark color and strong flavor characteristic of the product of pioneer days. It is said that if the sap could be evaporated immediately after it flows from the tree, without the presence of any foreign matter, and without any burning, the sugar would be snow white. Not only do foreign substances darken the product, but it is also darkened by exposing the sap for any considerable period to atmospheric changes. Fermentation is likely to take place when the sap is kept long, particularly if the weather is at all warm. By frequent boiling, or by keeping the sap cool, fermentation is prevented and a whiter grade of sugar and syrup is produced.

With the passing of the pioneer stage of Vermont life, with the growth of cities and the emigration thereto of men and women whose youth had been spent on farms, where they had learned to appreciate the delicious flavor of maple sugar and syrup, gradually there grew up a demand for these commodities. The price of white sugar gradually became cheaper until, in recent years, it is not cane sugar but maple sugar that is classed among the luxuries.



PRIMITIVE METHOD OF BOILING MAPLE SAP

No longer is maple sugar made as a matter of household economy, but to gratify a demand for a delicacy.

## IMPROVED METHODS OF SUGAR MAKING

As Vermont ceased to be a frontier community and came to be a land of well-tilled farms, the primitive methods of sugar making were improved, little by little. Instead of cutting a gash in the tree for tapping purposes, a hole was bored with an auger. The auger was pretty large when first used, sometimes the size was one and one-quarter inches. The sap spouts were of wood, often of sumac from which the pith was burned with a hot iron and the spout whittled down to fit the orifice bored in the tree. In time wooden buckets were substituted for wooden sap troughs. The sap was collected in pails suspended from a sap yoke carried on the shoulders. If the snow was very deep in the woods snow shoes were sometimes worn.

Within the past half century notable improvements have been made in the manufacture of maple products. Tin and galvanized iron buckets have replaced wooden ones, and many sugar makers have found that the quality of their product was improved by using covered sap buckets. Metal sap spouts with a hook from which the buckets are suspended take the place of wooden spouts, delivering sap into buckets suspended from a nail driven into the tree, or placed on the ground and propped up by stones. Gathering tanks take the place of an open tub or barrel drawn by horses or oxen, and sometimes pipes convey the sap to the sugar house.

The old method of boiling in an open kettle out of doors has been changed. At first a sort of open shed was built and the kettles were placed in an arch. Next the iron pan was substituted for the kettle. Another improvement was the heater, which heated the sap before it entered the pans. The next step was the invention of the evaporator. The first evaporators had wooden sides and corrugations running across the pans, but no opening beneath. There are many kinds of evaporators on the market at the present time, which are able to convert from twenty-five to one hundred gallons of sap into syrup in an hour. The sap, flowing from the storage tank, is regulated by feeders, and the boiling sap in the evaporator is kept at the same level all the time. As the sap passes from one compartment of the evaporator to another it increases in density and sweetness until it reaches the syringing-off pan, where it is drawn off in the form of syrup. The use of the thermometer and the hydrometer enable the sugar maker to determine with precision the consistency of the syrup. Water boils at 212 degrees, F., but as maple sap contains some solid matter it boils at a higher temperature than water. Ordinarily if the boiling



A GOOD DRINK OF SAP

syrup is removed when the thermometer registers 219 degrees F. it will give the standard weight of eleven pounds to the gallon. It is necessary, however, to make an allowance of one degree for every 500 feet of rise, as thermometers are graduated at the sea level, and the boiling point is reduced as the altitude increases.

Trees are tapped with a small bit now instead of an auger. It has been found that a small hole bored only a little way into the tree is quite as effective as a larger hole penetrating the tree several inches.

### THE PROCESS OF SUGAR MAKING

The maple sugar season always has been an interesting period, notwithstanding the hard work involved. The spirit of optimism is more prevalent in the spring than at any other period of the year, and the work of sugaring is entered upon with enthusiasm. In the old days it was necessary to soak the wooden buckets and tighten the hoops before they were scattered in the sugar woods. All the utensils must be cleansed and put in good repair. Often

the snow is deep in the woods when the sugar season opens, and it is necessary to break roads before the trees can be tapped. Some enterprising farmers break roads in their sugar places in the winter and keep them open in anticipation of the time when they will be needed.

In the days when the auger was used for tapping, one man could tap about fifty trees a day. The process is now simpler. Sometimes the sugar maker must wait several days after tapping before the sap begins to flow. When the sap runs well the sugar makers are kept busy gathering the sap so that it will not be wasted by overflowing buckets, and the boiling must be rapid enough, if possible, to prevent too large an accumulation of sap. The modern method aims to prevent keeping the sap any length of time as the quality is likely to deteriorate if kept long.

The fire under the sap should be quick and hot in order to reduce it to syrup as quickly as possible. When the sap begins to boil a scum arises which must be removed frequently. After the sap has been reduced to syrup the malate of lime, sometimes called nitre or sugar sand, held in solution, is precipitated. This may be removed by straining through felt while the syrup is hot, or the syrup may be allowed to cool, when it can be drawn off leaving the sediment at the bottom of the receptacle.

If the syrup is boiled too much, white crystals may form in the bottom of the can. This is not, as some purchasers have supposed, an indication of adulteration with white sugar, but an evidence of too thick a syrup.

## THE SUGARING-OFF PROCESS

From the earliest days of sugar-making the sugaring-off process has been the most interesting. This is usually done in a separate pan, and often on a separate arch, as there is danger that the boiling syrup will run over unless carefully watched. If the sugar is to be caked two or more smaller pans may be used, as the color and grain of the sugar depends largely upon the amount of stirring it receives. When it is so thick that it pours slowly it is turned into molds, and after it hardens it is ready to be wrapped in waxed paper. Some of the first runs of sap are made into cake sugar and this brings a higher price than that which is sold in the regular packages. Sugar that is to be shipped long distances or to hot climates should be cooked to a density of 240 to 245 degrees, which is several degrees higher than the density required for ordinary purposes.

Sugar on snow is one of the most delicious confections known to mortals. The syrup should be boiled until it will "wax," which is usually a little in excess of 230 degrees. Then it should be poured upon snow or ice. In the early days of sugar making, when germs

had no terrors for our ancestors, this waxed sugar was spread upon a clean snowbank. Now pans of snow or cracked ice are prepared and the brittle sheets of waxed sugar are eaten with sour pickles and plain or unsweetened doughnuts as a relish. The person who never has eaten waxed maple sugar has missed one of the gastro-nomic treats of a lifetime.

### ADULTERATION OF MAPLE PRODUCTS

One of the principal difficulties which the sugar maker has had to meet is the extensive adulteration of maple products. This has been carried to such an extent that probably the greater part of the American people would not recognize the pure article if they saw it. A bulletin issued by the United States Department of Agriculture a few years ago declared that "at the very lowest estimate seven-eighths of the product sold today is a spurious article, which is only in part maple sugar, or is manufactured entirely from foreign materials."

Much low grade maple sugar is purchased and used to flavor a body of glucose or cane sugar from six to ten times as great, and the dark, strong sugar is preferred because it will flavor a larger mass than the better grade of sugar. It makes little difference whether the sugar season in Vermont is good or poor, these city "sugar works" turn out their blended or spurious product wholly irrespective of weather conditions in maple forests on the hills of Vermont. These manufacturers of adulterated goods plead as an excuse that the demand for maple products is greater than the supply and that they should be allowed to continue their business. The buying public, however, are entitled to know whether they are buying pure or impure maple products, and if only pure products were sold as pure maple sugar or syrup then there would be encouragement to enlarge the output of genuine maple sugar and syrup.

Dr. H. W. Wiley, the pure food expert, has called attention to the fact that some maple products, so-called, contain not a particle of maple sugar or syrup but are flavored with an extract made from hickory bark. Fictitious names have been used on "Vermont" labels and names of towns used not found on any Vermont map ever published. It is said that from fifty to seventy-five carloads of low grade maple sugar, the product of the last runs of sap, are purchased in Vermont every year for use by manufacturers of chewing tobacco.

Vermont has a pure food and drug law (Public Statutes, sections 5466 and 5494 inclusive) which strictly prohibits the adulteration and misbranding of food products, including maple sugar and syrup.



## WHAT CENSUS FIGURES SHOW

The United States census report for 1910 showed that the number of maple trees tapped in the United States in 1909 was 18,899,533. The number tapped in Vermont that year was 5,585,632, or 29.5 per cent, nearly one-third of the whole number of trees tapped, and the largest number reported by any State. The value of the maple products of the United States in 1909 was \$5,177,800, and Vermont's product that year was valued at \$1,086,933, or 20.99 per cent of the whole. The total amount of maple sugar made in the United States in 1909 was 14,060,206 pounds, and Vermont's production that year was 7,726,817 pounds or 54.95 per cent, more than half the maple sugar made in the entire country that year. In 1909, 4,106,418 gallons of maple syrup were made in the United States, and during that year Vermont made 409,953 gallons. In 1889 Vermont produced 14,123,921 pounds of maple sugar, but the ravages of the maple worm and the increasing value of maple wood for timber purposes have tended to decrease production, but it is possible largely to increase the output of maple sugar and syrup.

Taking into account the census figures for population and for maple sugar production in 1909, there was made in that year enough maple sugar to give each individual in the United States .15 of a pound, and enough maple syrup to give each person in this country .04 of a gallon.

The census office reported the following statistics regarding the production of maple sugar and syrup in the United States in 1909:

	Farms Reporting	Trees Tapped	Value
Maine	2,274	252,764	\$ 52,137
New Hampshire	3,518	792,147	182,341
Vermont	10,066	5,585,632	1,086,933
Massachusetts	1,525	256,501	77,559
Rhode Island	2	39	14
Connecticut	307	12,296	6,988
New York	25,525	4,948,784	1,240,684
New Jersey	81	1,275	1,037
Pennsylvania	10,383	1,298,005	471,213
Ohio	12,103	3,170,828	1,099,248
Indiana	5,422	742,586	300,755
Illinois	557	48,098	23,502
Michigan	6,542	986,737	333,791
Wisconsin	4,313	449,727	150,038
Minnesota	698	67,225	23,362
Iowa	398	23,965	11,495
Missouri	537	30,399	12,950
North Dakota	1	1,000	100



GATHERING SAP WITH OXEN

South Dakota	1	8	\$ 3
Nebraska	5	140	24
Kansas	20	3,223	1,217
Maryland	218	79,658	34,386
Virginia	447	25,451	12,233
West Virginia	1,990	97,274	46,568
North Carolina	85	3,101	965
Kentucky	333	17,476	6,681
Tennessee	164	4,107	1,333
Arkansas	20	1,001	230
Montana	1	36	12
Washington	1	50	10
Total	87,537	18,899,533	\$ 5,177,809

Under the McKinley tariff act a bounty was paid on maple sugar. If the sugar tested not less than 90 degrees by the polariscope a bounty of two cents a pound was paid, and if it tested less than 90 degrees but not less than 80 degrees, a bounty of one cent a pound was paid. More than 10,000 Vermont farmers took advantage of the law. The important fact in this connection was that seven-eighths of the sugar made in Vermont was of a grade sufficiently high to obtain the bounty. The highest test in the years 1892 and 1893 was 98.2 degrees, and was said to be "quite as white as granulated sugar."

## A VERMONT MAPLE SUGAR CENSUS

The Vermont Legislature of 1912 directed the listers to make certain investigations concerning the maple sugar industry in this State. As a result statistics were gathered in the spring of 1914, 11 of the 246 towns failing to report, which showed the production of maple sugar to be 7,117,671 pounds, and the production of maple syrup to be 433,750½ gallons. The number of maple trees tapped was shown to be 5,190,461, and the number available and not tapped was given as 4,741,915, or almost as many as those producing maple sap.

According to these statistics the banner maple sugar towns of the State were Greensboro, 235,850 pounds of sugar and 834 gallons of syrup; Cambridge, 214,900 pounds of sugar and 1,046 gallons of syrup; and Albany, 200,100 pounds of sugar. Orleans county made the most maple sugar of any county in the State, and Franklin county led in the production of maple syrup. Two counties, Orleans and Franklin, made more than 1,000,000 pounds of sugar each. Five counties, Orleans, Franklin, Lamoille, Caledonia and Washington, made more than 500,000 pounds of sugar each.

The return by counties of maple sugar and maple syrup made was as follows:

	Pounds of sugar	Gallons of syrup
Addison	300,197	21,847
Bennington	22,480	29,534½
Caledonia	961,043	13,429
Chittenden	277,532	49,547
Essex	96,510	9,908
Franklin	1,117,414	78,934
Grand Isle	1,540	180
Lamoille	745,670	18,366
Orange	457,373	21,486
Orleans	2,016,854	7,291
Rutland	118,020	62,602
Washington	600,995	12,125
Windham	133,269	65,089
Windsor	268,774	43,412
Total	7,117,671	433,750½

In Bennington, Grand Isle, Orange, Rutland, Washington, and Windsor counties, nearly half the counties of the State, the number of maple trees available but not tapped exceeded the number tapped. The figures compiled show that notwithstanding the large number of maple trees cut for lumber, there are still great possibilities of increasing Vermont's output of maple products.

The census taken in 1914 showed almost 10,000,000 trees, 9,932,376, of which 52 per cent were tapped. The same census shows roughly 7,100,000 pounds of sugar made and 434,000 gallons of syrup. Assuming this syrup to be eleven pounds to the gallon, which means eight pounds of sugar, calculating this into sugar and adding to the actual sugar, there is shown a total yield from a little more than 5,000,000 trees tapped of approximately 10,572,000 pounds of sugar. Assuming that all the trees were tapped and calculating accordingly, the entire yield for last year would be approximately 20,330,700 pounds of sugar. Of course years and seasons vary enormously in the yield of sap and the consequent production of sugar and syrup.

The returns by counties of maple trees tapped, and trees available but not tapped, are given herewith:

	Trees tapped	Trees available but not tapped
Addison	210,362	201,867
Bennington	123,921	261,783
Caledonia	561,105	542,296

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Chittenden	294,773	258,063
Essex	102,085	90,700
Franklin	749,729	377,179
Grand Isle	2,090	9,606
Lamoille	458,268	307,140
Orange	346,977	578,292
Orleans	1,043,311	605,571
Rutland	249,144	261,084
Washington	376,100	464,233
Windham	389,092	330,792
Windsor	283,768	453,309
	<hr/>	<hr/>
Total	5,190,461	4,741,915



SUGARING OFF



AN EXHIBIT OF MAPLE PRODUCTS

## THE VERMONT MAPLE SUGAR MAKERS' ASSOCIATION

There was organized at Morrisville on January 12, 1893, the Vermont Maple Sugar Makers' Association, Frank Kenfield of Morrisville being elected the first president. One of the reasons for meeting at this time was to arrange for an exhibit of maple products at the World's Fair to be held in Chicago that year, but the general purpose of the organization was to encourage the production of pure, high grade maple sugar and syrup, and to aid the sugar maker in solving his problems. This organization has been of great benefit, not only to individual producers, but to the industry in general.

In the spring of 1914 the Vermont Publicity Department in the Secretary of State's office, co-operating with the officers of the Vermont Maple Sugar Makers' Association, and assisted by the Vermont Department of Agriculture, entered upon a campaign of publicity in order to extend more widely a knowledge of Vermont's maple products, and to bring the consumer and producer more closely together, thus ensuring a better distribution of pure maple products of standard quality. To this end letters were sent out and to those persons requesting such literature, a "History of Vermont's Maple Sugar Industry," accompanied by a list of the members of the Vermont Maple Sugar Makers' Association was furnished. This list of members, who guarantee to furnish pure maple products of standard quality, is as follows:

Adams, Herbert W., White River Junction, Vt.

Abbott, Walter I., Marshfield, Vt.

Allbee, G. H., East Hardwick, Vt.

Akin, J. R., Newport, Vt.

Allen, C. H., South Royalton, Vt.

Allen, Fred E. South Royalton, Vt.

Allen, W. D., West Charleston, Vt.

Aldrich, C. F., Springfield, Vt., R. F. D. 8.

Brown, B. B., Danby, Vt.

Brown, W. John, Middletown Springs, Vt.

Buxton, B. C., Middletown Springs, Vt.

Blanchard, F. W., Ascutneyville, Vt.

Burnham, T. K., Bristol, Vt., R. F. D. 8.

Brock, John B., West Newbury, Vt.

Buck, Myron J., East Bethel, Vt.

Bashaw, H. A., Orleans, Vt., R. F. D. 1

Bailey, W. E., South Ryegate, Vt.

Bailey, L. J., Williamstown, Vt.

Brigham, Fred, Norwich, Vt.

Bromley, K. M., Danby, Vt.

Bromley, Mrs. K. M., Danby, Vt.

Bromley, M. J., Danby, Vt.

Bromley, Mrs. M. J., Danby, Vt.

Bromley, Miss Nancy F., Danby, Vt.

Bromley, Mott H., Danby, Vt.

Bromley, Duane, P., Danby, Vt.

Bromley, Delos B., Danby, Vt.

Badlam, G. E. L., Rutland, Vt.

Bisbee, John C., Moretown, Vt.

Benton, John, Lincoln, Vt.

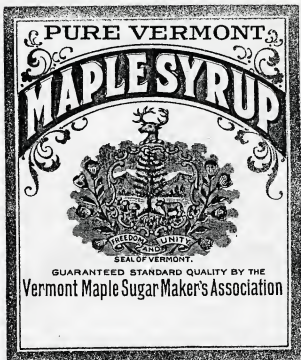
Baldwin, R. G., Mt. Holly, Vt.

Burton, E. S., Mt. Holly, Vt.

Baldwin, J. C., Mt. Holly, Vt.

- Bartholomew, A. V., White River Jct., Vt.
- Bugbee, E. J., Tunbridge, Vt.
- Bigelow, James T., Saxtons River, Vt.
- Badger, Mrs. J. E., East Montpelier, Vt.
- Badger, C. A., East Montpelier, Vt.
- Barland, C. M., West Glover, Vt.
- Benedict, G. H., Underhill, Vt.
- Best, A. M., 100 William St., N. Y. City, N. Y.
- Bradley, R. J., Moretown, Vt.
- Burbank, M., Orleans, Vt., R. F. D.
- Before, Henry, Newport, Vt.
- Beckwith, W. H., Chelsea, Vt.
- Bingham, Lucian W., Middlebury, Vt.
- Butler, A. E., Moretown, Vt.
- Cameron, Wm., W. Glover, Vt.
- Cheney, S. T. R., Jamaica, Vt.
- Chapin, J. A., Middlesex, Vt.
- Cook, A. H., Middletown Springs, Vt.
- Clifford, A. E., Starksboro, Vt., R. F. D. 2.
- Carleton, A. A., West Newbury, Vt.
- Collins, W. H., Strafford, Vt.
- Colvin, C. H., Danby, Vt.
- Colvin, Mrs. C. H., Danby, Vt.
- Cook, L. E., Cambridge, Vt.
- Curtis, A. T., St. Albans, Vt.
- Carleton, A. H., West Newbury, Vt.
- Carleton, E., 21 Highland Ave., Barre, Vt.
- Coburn, Harry L., E. Montpelier, Vt.
- Cram, M. F., Northfield, Vt.
- Corry, Dewey, Danby, Vt.
- Chapin, M. E., Middlesex, Vt.
- Chapin, H. B., Middlesex, Vt.
- Chandler, F. G. & Son, West Danville, Vt.
- Cloud, J. H., Pompanoosuc, Vt.
- Clark, C. C., Bristol, Vt., R. F. D. 3.
- Crawford, B. R., Montpelier, Vt.
- Collins, M. L., Strafford, Vt.
- Cary, Geo. C., St. Johnsbury, Vt.
- Clark, E. L., Glover, Vt.
- Colby & Strawn, Orleans, Vt., R. F. D. 3.
- Church, W. E., Derby, Vt., R. F. D. 1.
- Colvin, John C., West Rutland, Vt.
- Colvin, N. E., Danby, Vt.
- Collins, E. B., Hyde Park, Vt.
- Chaffee, C. E., Irasburg, Vt.
- Chamberlin, H. B., Irasburg, Vt.
- Croft, A. J., Enosburg Falls, Vt.
- Dutton, R. A., Orleans, Vt.
- Davis, G. A., Rutland, Vt.
- Dow, Foster, Stowe, Vt.
- Dorian, H. J., Rutland, Vt.
- Dunnett, G. H., South Ryegate, Vt.
- Daniels, Sam, Hardwick, Vt.
- Durant, J. H., West Newbury, Vt.
- Davis, Smith G., Montgomery Center, Vt.
- Dow, Ora, Cabot, Vt.
- Dutton, E. E., Orleans, Vt., R. F. D.
- Dorr, W. H. & Son, Middlebury, Vt.
- Dutton, Geo. L. S., Royalton, Vt.
- Divol, F. P., Springfield, Vt.
- Fitch, E. C., Calais, Vt.
- Foster, W. H., Calais, Vt.
- Foster, E. N., Waterbury, Vt.
- Fuller, A. A., Warren, Vt., R. F. D. 1.
- Field, W. F., Hardwick, Vt.
- Foster, C. D., Cabot, Vt.
- Foster, Col. H. S., No. Calais, Vt.
- Fields, H. B. & Son, Milton, Vt.
- Fulton, Geo. B., Irasburg, Vt.
- Fish, Marshal B., Rutland, Vt.
- Fish, Newhall B., Rutland, Vt.
- Findlay, Howard, No. Craftsbury, Vt.
- Fitzgerald Bros., Underhill, Vt.
- Gilbert, W. B., Woodstock, Vt.
- Giddings, D. E., East Fairfield, Vt.
- Gaylord, P. B., Waitsfield, Vt.
- Gould, Jay, Danby, Vt.
- Gould, Mrs. Jay, Danby, Vt.
- George, F. A., Williamstown, Vt.
- Grimm, John H., Montreal, Can.
- Gravelin, Edward, Newport, Vt.
- Gross, E. A., Orleans, Vt., R. F. D.
- Gilbert H. H., & Son, E. Fairfield, Vt.
- Gardner, Geo. C., Springfield, Vt.
- Gregg, Leon A., Springfield, Vt., R. F. D. 3.





The above is a facsimile reproduction of the official label used by the Vermont Maple Sugar Makers' Association, which is a guarantee of pure, standard grade, maple products.

- Howard, E. S., West Hartford, Vt.  
 Hunt, A. J., Westfield, Vt.  
 Hart, Robert C., 81 Fifth Ave., Brooklyn, N. Y.  
 Hewes, L. K. & Son, S. Londonderry, Vt.  
 Hill, Arthur S., Bristol, Vt., R. F. D.  
 Higgins, Dr. J. H., Union Village, Vt.  
 Hayford, W. E., East Montpelier, Vt.  
 Hatch, S. A., West Danville, Vt.  
 Holden, Jerome, Putney, Vt.  
 Hammond, W. S., Newport, Vt.  
 Holden, John C., N. Clarendon, Vt.  
 Holden, Arthur N., N. Clarendon, Vt.  
 Holden, W. W., Northfield, Vt.  
 Holden, Ira L., Northfield, Vt.  
 Hewitt, A. W., Plainfield, Vt.  
 Hill, E. K., Middlesex, Vt.  
 Hooper, E. J., East Fairfield, Vt.  
 Hubbell, M. L., Enosburg Falls, Vt.  
 Hewitt, H. J., Bristol, Vt.  
 Hills, Joseph L., Burlington, Vt.  
 Hayes, F. W., Strafford, Vt.  
 Hayes, J. R., Strafford, Vt.  
 Hayes, Mrs. A. L., Strafford, Vt.  
 Hayes, M. W., Strafford, Vt.  
 Hayes, J., Strafford, Vt.  
 Howe, Will W., Tunbridge, Vt.  
 Hines Bros., Hardwick, Vt.  
 Hopkinson, Geo., Derby, Vt.  
 Hathorn, G. B., Barnard, Vt.  
 Hoskinson, H. M., Mt. Holly, Vt.  
 Heald, E. I. & Son, Proctorsville, Vt.  
 Howard, Dana I., W. Brattleboro, Vt.  
 Huntoon, Phillip J., W. Charleston, Vt.  
 Harding, John S., Vershire, Vt.  
 Hewins, Henry W., Thetford Center, Vt.  
 Hall, A. R., Derby, Vt.
- Joslyn, E. J., Newport, Vt.  
 Jones, C. H., Burlington, Vt.  
 Jenne, A. M., Richford, Vt., R. F. D.  
 Jewell, Frank G., Corinth, Vt.  
 Jackson, O. H., Westford, Vt.  
 Johnson, I. P., Craftsbury, Vt.
- Kneeland, Doric A., Waitsfield, Vt.  
 Kelley, E. S., Orleans, Vt., R. F. D. 3  
 Kinsley, O. A., East Fairfield, Vt.
- Libby, F. J., Newport, Vt.  
 Lathrop, E. W., Vershire, Vt.  
 Leonard, T. A., Proctorsville, Vt.  
 Luxford, Leo. L., Newport Center, Vt.  
 Leader Evaporator Co., Burlington, Vt.  
 Lane, C. H., Middlebury, Vt.  
 Lilley, J. O., Plainfield, Vt.  
 Ladeau, George, Fairfield, Vt.  
 Laird, G. A., Cabot, Vt.  
 Lackey, E. A., Jamaica, Vt.
- Maloney, Patsey, E. Wallingford, Vt.  
 Martin, Wm. E., Norwich, Vt.  
 Miller, H. D., Westfield, Vt.  
 Maxfield, E. C., Newport, Vt.  
 Magoon, A. R. & Son, Newport, Vt.  
 Maxham, M. C., Worcester, Vt.  
 Martin, Orlando L., Plainfield, Vt.  
 Merrill, John H., Roxbury, Vt.  
 McKnight, Geo. C., East Montpelier, Vt.
- Murray, John, S. Cavendish, Vt.  
 Miner, John F., South Royalton, Vt.  
 Myott, John, Montgoinery, Vt.  
 Mack, Wm. H., Ascutucyville, Vt.  
 Miles, McMahon & Son, Stowe, Vt.  
 Marsden, Geo., Northfield, Vt.  
 Martin, R. J., Rochester, Vt.  
 Martin, C. E., Rochester, Vt.  
 Morey, B. S., Waterbury Center, Vt.  
 Morse, Ira E., Cambridge, Vt.  
 Moulton, F. R., Derby Line, Vt.  
 Matthews, Andrew C., 21 Watkins St., Rutland, Vt.  
 Morse, L. B., Norwich, Vt.
- Northrop, P. B. B., Sheldon, Vt.  
 Niles, Allen P., Derby, Vt.  
 Newell, E. O., West Wardsboro, Vt.  
 Nelson, G. E., Barre, Vt.  
 Nye, George W., St. Albans, Vt.
- Orvis, C. M., Bristol, Vt., R.F.D. 3.  
 Peck Co., St. Johnsbury, Vt.  
 Patterson, F. L., Newport, Vt.

- Perry, Clarence E., Coventry, Vt.  
 Perley, Eugene & Son, Richford, Vt.  
 Perry, E. B. & Son, Ira, Vt.  
 Perry, C. D., Plainfield, Vt.  
 Pike, J. B., Marshfield, Vt.  
 Pike, Mrs. J. B., Marshfield, Vt.  
 Pitkin, E. W., Plainfield, Vt.  
 Park, O. H., West Burke, Vt., R. F. D. 1  
 Prindle, Guy M., St. Albans, Vt.  
 Powell, G. D., Mt. Holly, Vt.  
 Priest, S. J., Belmont, Vt.  
 Pease, C. H., Marlboro, Vt.  
 Pease, Edw. E., Weston, Vt.  
 Mastridge, Wallace A., Northfield, Vt.  
 Prindle, Martin, St. Albans, Vt.  
 Putnam, Fred A., Springfield, Vt., R. F. D. 3.  
 Putnam, Leon R., Springfield, Vt., R. F. D. 3  
 Page, W. B., Springfield, Vt., R. F. D. 3  
 Plumley, Elmer, Cuttingsville, Vt.  
 Parker, C. A., Irasburg, Vt.  
 Pitit, Telephore, Newport, Vt.  
 Peavy, I. L., Morgan, Vt.  
 Roberts, J. W., St. Johnsbury, Vt.  
 Roberts, M. B., Rupert, Vt.  
 Rawson, Nobel H., Windham, Vt.  
 Rollins, Nathaniel & Sons, Middlesex, Vt.  
 Rogers, B. O., West Newbury, Vt.  
 Richardson, H. B., Union Village, Vt.  
 Riford, H. P., Proctorsville, Vt.  
 Rogers, C. L., Newport Center, Vt.  
 Russell, C. E., East Middlebury, Vt.  
 Russell, Thomas G., Cuttingsville, Vt.  
 Squires, H. C. & Son, Newport, Vt.  
 Scott, C. G., Newport, Vt.  
 Spear, J. P., West Newbury, Vt.  
 Spear, F. P., West Newbury, Vt.  
 Schillhammer, Carl R., Jericho, Vt.  
 Smith, Alvin H., Danby, Vt.  
 Sprague, Geo. K., Randolph Center, Vt.  
 Salmon, N. K. and Arthur, Glover, Vt.  
 Soule, Geo. H., Fairfield, Vt.  
 Stone, Mason S., Montpelier, Vt.  
 Spear, V. I., Randolph, Vt.  
 Sanders, B. E., Calais, Vt.  
 Strong, Fred W., Montpelier, Vt.  
 Shepard, W. F., Barre, Vt.  
 Strong, S. H., Moretown, Vt.  
 Small Bros. Mfg. Co., Richford, Vt.  
 Smith, Alson, Plainfield, Vt.  
 Stebbins, E. W., Cambridge, Vt.  
 Schoyltz, L. Jos., Derby, Vt.  
 Swanson, F. V., Orleans, Vt., R. F. D.  
 Simpson, W. Arthur, Lyndonville, Vt.  
 Shinc, Edwin W., S. Londonderry, Vt.  
 Stiles, R. G., West Glover, Vt.  
 Sherlaw, Edward C., Newport Center, Vt.  
 Swan, P. B., Montgomery, Vt.  
 Sykes, Aurelius, Hinesburg, Vt.  
 Spaulding, R. A., West Charleston, Vt.  
 Simpson, A., Perkinsville, Vt.  
 Stearns, Collins, Perkinsville, Vt.  
 Shattuck D. A., & Son, S. Londonderry, Vt.  
 Stone, O. B., Eden Mills, Vt.  
 Smith, A. J., Barton, Vt.  
 Strawn, N. W., Orleans, Vt.  
 Story & Hicks, Essex Jct., Vt.  
 Teer, Frank, West Rutland, Vt.  
 Tietz, Wm., Richmond, Vt.  
 Tift, Edgar F., Dorset, Vt.  
 Turner, T. A., Weston, Vt.  
 Thorburn, Andrew, Norwich, Vt.  
 Tuxbury, W. H., West Newbury, Vt.  
 Tuxbury, R. C., West Newbury, Vt.  
 Tabor, H. S., Montpelier, Vt.  
 Thomson, J. Edward, Landgrove, Vt.  
 Tanner, H. E., Marshfield, Vt.  
 True, W. W., Newport, Vt.  
 Tenney, E. C., Mgr. Scott Farm, Brattleboro, Vt.  
 Tuller, Fred V., Tunbridge, Vt.  
 Waterhouse, C. E., Craftsbury, Vt.  
 Wilber, B. L., N. Montpelier, Vt.  
 Wetherby Bros., Danby, Vt.  
 Wetherby, Omar M., Danby, Vt.  
 Wilder, L. O., Middlesex, Vt.

Walker, Lewis M., West Rutland, Vt.  
 Walker, B. J., West Rutland, Vt.  
 Walbridge, E. P., Cabot, Vt.  
 Wilber, Frank, Rochester, Vt.  
 Wilber, Seth, Moretown, Vt.  
 Wade, A. P., Moretown, Vt.  
 Whitehill, E. M., Derby, Vt.  
 Wood, Geo. M., Waterbury Center,  
 Vt.  
 Watson, Charles, Derby, Vt.  
 Wheaton, Chas. J., Passumpsic, Vt.  
 Weeks, A. B., Stowe, Vt.  
 Walker, H. I., Weston, Vt.  
 Vail, Homer W., Randolph, Vt.

York, William E., Bristol, Vt., R.F.D. 4  
 Young, J. E., Orleans, Vt., R. F. D. 4

#### Honorary Members

Hon. C. S. Page, Washington, D. C.  
 Hon. William P. Dillingham, Wash-  
 ington, D. C.  
 Hon. Frank L. Greene, Washington,  
 D. C.  
 Hon. Porter H. Dale, Washington,  
 D. C.  
 Dr. R. C. Minchan, Green Bay, Wis.  
 C. G. Sevey, Editor New England  
 Homestead, Springfield, Mass.

The officers of the Association for the current year are:

President, A. A. CARLETON, West Newbury.  
 Secretary, H. B. CHAPIN, Middlesex  
 First Vice-President, W. E. YORK, West Lincoln  
 Second Vice-President, A. M. JENNE, Richford  
 Treasurer, HOMER W. VAIL, Randolph  
 Auditor, P. B. B. NORTHROP, Sheldon

### DIRECTIONS FOR THE CARE OF MAPLE SUGAR AND SYRUP

**Sugar.** To keep maple sugar in a warm climate, store in as cool and dry a place as possible. If in tin and tightly covered it will mould and ferment on top. To prevent this the best method is to take off the covers and paste over the top of the can a piece of strong manila paper. This will also serve to keep out the ants. Tubs with covers are not as liable to ferment, but it is well to treat them in the same manner.

**Syrup.** Syrup should be put in air-tight packages and kept so until used. If the syrup is received packed in sawdust the best method is to leave it in the original package and store in a dark, cool place until needed for use, and if it is put up in glass be very careful to keep it from the light. If for any reason the syrup should begin to ferment, which will be known in the case of tin packages by a bulging of the head of the can called "swelled-head," it should be borne in mind that it is not necessarily spoiled as would be the case with fruit, but by heating it to a boiling temperature the fermentation can be arrested and the original flavor, to a great extent, restored. And in this connection it may be said that either syrup or sugar, which has been kept for some time, will be greatly improved in flavor by the same treatment.



A MODERN EVAPORATOR IN OPERATION



IN THE SUGAR WOODS

## WORK OF EXPERIMENT STATION

The following description of the work of the Vermont Experiment Station is furnished by Prof. J. L. Hills, dean of the State Agricultural College:

The Vermont Experiment Station has naturally given much attention to the study of maple problems. It has delved into the chemistry and physiology and the bacteriology of the sap flow; developed methods whereby sophistication can be unerringly detected; and helped greatly in the days of the early nineties when a bounty was paid to sugar makers in pointing out how sugar might be made to meet the government requirements. Five bulletins have been published, aggregating over 500 pages. They are: Nos. 26, Maple Sugar; 103, The Maple Sap Flow; 105, Popular Edition of No. 103; 151, Buddy Sap; 167, Micro-organisms of Maple Sap. These are sent without charge to any address on application—save 103, out of print. Obviously this great mass of material, much of which is extremely technical in character, cannot be included here; nor can any summary be given sufficiently wide in its scope to do the large amount of work justice. However, the following statements, deduced from extensive trials carried on for many years in the sugar bush, seem to have practical bearing and to be worth recording here.

1. An accurate thermometer is serviceable in making standard sugar and syrup. Sap boils at about 213 degrees F. At 219 degrees F. (at 500 feet above sea-level) ordinarily the syrup will have a specific gravity of about 1.325 and weigh 11 pounds to the gallon, a standard weight, at which it will not granulate. A first run sap boiling (at 500 feet above sea-level) at 233 degrees F. will usually make a sugar carrying about 80 per cent sugar; the general run of sap throughout the season will need to be heated to 235 degrees to 236 degrees F. and late runs to 238 degrees F. If the nitre (malate of lime) is not removed, temperatures should run 2 degrees F. higher. The nitre and other extraneous solid materials at the beginning of the season constitute about 6 per cent of the total dry matter of the sap; later in the season they may constitute from 25 to 30 per cent thereof. An increase or decrease in altitude of 500 feet affects the thermometer 1 degree F. Average Vermont sugar usually carries from 80 to 85 per cent actual sugar, though late runs will carry less than this.

2. Whence comes the sugar? Maple sugar is formed from starch in the late winter and early spring. This starch is stored in certain sap wood cells during the preceding summer and is probably transformed into sugar through the action of enzymes. The starch is formed in the leaves under the influence of sunlight. A large leaf area and plenty of sunshine conduce to sugar making. The reverse conditions hinder it.

3. What is the cause of the sap flow? The immediate cause of the flow from the taphole is sap movement under pressure towards the point of least resistance. Its exciting cause seems to be temperature fluctuations back and forth over the 32d degree F. line, causing alternation of pressure and suction, a pumplike action. The ultimate and absolute cause can hardly be this or any other physical one, but is probably a function of the living cell. Increase of water content and rising temperature produce pressure, pressure induces sap movement, and sap movement means sap flow which comes usually from tissues directly above and below the taphole.

4. What bearing has the location of the tree and variations in tapping on the flow? Trees in the open yield more and richer sap than those further back in the bush, crowded and shaded, because of greater leaf expansion and sun exposure. No more sugar is yielded by tapping on the "branchy" side of a tree than on that relatively devoid of branches. More sugar is obtained from the outer 1.5 inches than from the deeper tissues. Four-fifths of the sugar yielded from a 6-inch taphole comes from the outer 3 inches.

On typical sap days a taphole on the south side yields the most sugar, but on other days, particularly if cloudy, when all sides of the tree warm more equally, the outcome between taps on different sides of the tree is more uniform. No decided advantage arises from a too careful selection of any particular side for tapping. The best results will be secured by selecting a point that does not show the nearby marks of recent tapings.

The sap obtained from the customary tapping height (4 feet) is greater in quantity and better in quality than that from the root or higher on the tree.

The larger the taphole the more sap and sugar, for a time at least. It is undesirable, however, so to wound the tree that the hole will not soon heal over. A 3-8 to 5-8 inch sharp bit is recommended for tapping. The hole should be free from shavings, borings, etc., before the spout is inserted. The spout selected should not obstruct the wood tissues, should securely hold the pail and be easily inserted and removed. The bark should largely contribute to its firm holding.

5. What is the extent and cause of sap variation? Sixty-three per cent of the sap drops before noon. There is a slight increase in its sugar content as the day advances. As between orchards there are large variations; in five cases 2.08 and 3.44 per cents being extremes. In the same place in consecutive years the sugar contents were 2.14 and 2.42 per cents, while the average sugar content in sap flowing from the experimental trees was 3.13 and 3.41 per cents. This was not due to a selection of trees but to rain water and snow, which constituted a third of the entire

liquid gathered, hauled and evaporated. The expense of handling this material would pay the cost of pail covers in a short time.

6. What draft does an average sugar yield make upon the total sugar content of a tree? If 3 pounds of sugar is made to the tree, from 4 to 9 per cent is removed, according to the size of the tree.

7. Maple sap as it occurs within the tree is free from bacteria and other micro-organisms. As the sap flows from the tree it becomes infected, in the taphole, spouts and buckets, with wild yeasts, spores of moulds, and countless number of bacteria. This infection becomes increasingly heavy with the advance of the sugar season and is the cause of the "souring" of sap.

Some of the types of hurt sap are caused by the action of specific groups of organisms, others may be caused by the collective action of many of the common forms.

Green sap and the resulting red syrup are not to be attributed to the swelling of the buds, but are caused by the development of a particular group of bacteria characterized by green fluorescence.

The dark color of the late run syrup, so be it is clean and free from colored rainwater, bark, insects, caramel, etc., is due entirely to the action of micro-organisms, and particularly the fluorescent bacteria. If these are eliminated, as light-colored syrup may be made from the last run as from the first run.

The flavor of the syrups is also seriously impaired by these agents, and especially by the non-fluorescent, spore-bearing bacteria, molds, etc. This injury often becomes pronounced before marked change in color is produced. "Buddy" flavors also appear to be due, at least in part, to the actions of micro-organisms. Physiological changes due to the resumption of the vegetative activity of the tree may also be responsible in part for the development of buddy flavor.

The numbers of micro-organisms may be lessened and, consequently, the quality of the product may be improved by: (1) keeping the spouts and buckets thoroughly clean and covered; (2) using metal utensils in lieu of wooden ones; (3) gathering the sap at short intervals in clean holders and boiling it at once or, if impracticable, holding at low temperatures in holders located outside the boiling house. No known means exists of avoiding the physiologically induced buddy flavor. However, much so-called syrup is not thus made "buddy," but is ill flavored because of micro-organic contamination.

## POSTAL AND EXPRESS RATES

Some information regarding the shipment of maple sugar and syrup in small quantities may be useful. The parcel post rates on a ten-pound pail of maple sugar would be 15 cents in the





INTERIOR OF A SUGAR CAMP



A SUGAR CAMP IN THE FOREST

first and second zones. In the third zone it would be 6 cents more for the first pound, and 2 cents for every additional pound. Maple syrup should be carefully sealed and boxed. A gallon of syrup should weigh eleven pounds. Assuming that the box weighs one pound the parcel post rates would be 16 cents in the first and second zones.

The following express rates are furnished on a ten-pound pair of maple sugar and on a can of maple syrup weighing eleven pounds, sent from Montpelier, Vt., to some of the principal cities of the United States:

	10-lbs.	11-lbs.
Albany, N. Y.	\$0.25	\$0.25
Atlanta, Ga.	.41	.44
Baltimore, Md.	.27	.29
Birmingham, Ala.	.43	.46
Boston, Mass.	.25	.25
Bridgeport, Conn.	.25	.25
Buffalo, N. Y.	.27	.27
Cambridge, Mass.	.25	.25
Chicago, Ill.	.33	.34
Cincinnati, Ohio	.32	.34
Cleveland, Ohio	.30	.31
Columbus, Ohio	.41	.43
Dayton, Ohio	.32	.34
Denver, Colo.	.57	.62
Detroit, Mich.	.30	.32
Fall River, Mass.	.25	.25
Grand Rapids, Mich.	.32	.34
Indianapolis, Ind.	.32	.34
Jersey City, N. J.	.25	.26
Kansas City, Mo.	.42	.44
Louisville, Ky.	.33	.35
Lowell, Mass.	.25	.25
Memphis, Tenn.	.40	.43
Milwaukee, Wis.	.33	.36
Minneapolis, Minn.	.40	.42
Nashville, Tenn.	.37	.39
Newark, N. J.	.25	.26
New Haven, Conn.	.25	.25
New Orleans, La.	.51	.54
New York City	.25	.25
Oakland, Calif.	.93	1.02
Omaha, Neb.	.43	.46
Philadelphia, Pa.	.27	.27
Pittsburgh, Pa.	.29	.30
Portland, Ore.	.91	.99



THE SAP GATHERERS



SWEETENING THE DAY'S TOIL

Providence, R. I.	\$ .25	\$ .25
Richmond, Va.	.30	.33
Rochester, N. Y.	.25	.26
St. Louis, Mo.	.36	.38
St. Paul, Minn.	.40	.42
San Francisco, Calif.	.93	1.02
Scranton, Pa.	.25	.25
Seattle, Wash.	.89	.96
Syracuse, N. Y.	.25	.25
Toledo, Ohio	.30	.33
Washington, D. C.	.28	.30
Worcester, Mass.	.25	.25

## IN SUGARING TIME.

Helen M. Winslow, in Harper's Bazar.

It's sugarin'-time up country; an' settin' here in town  
 I seem to hear the "drip, drip, drip" of sap a-tricklin' down  
 Into them wooden buckets in our old sugar place,  
 Afore Josiah died, an' our only daughter, Grace,  
 Insisted 'twasn't no ways safe for me to live alone  
 Up in that old brown farm-house that long's I live I own;  
 An' naught would do but I must come an' stay along o' her,  
 Where sugarin' might be hayin' time, an' all this bustlin' stir;  
 Where smell o' spring, an' tricklin' sap, and wild flowers never  
 come.  
 There ain't no chance for such things around Grace's city home;  
 An' sugarin'-time no different ain't from summer or from fall.  
 I wisht Josiah'n' me was back—a-workin' hard an' all.

The children on these brick-paved walks they make me think of  
 Jim,  
 What we had hoped would stay by us—the farm was meant for  
 him.  
 He died when he was twenty. Yes, there was young Josiah,  
 Professor in a college now, with hope of something higher.  
 An' Grace, our girl, she married what they called a railroad king,  
 An' lives on Beacon Street, in all the styles that she can swing.  
 But all the same, when April comes, I see 'em all again,  
 Jest runnin' wild around that farm, them three, an' in  
 All sorts of mischief daily, from early spring to fall.  
 I wisht the hull of us was back—a-workin' hard an' all.

I seem to see the tassels shakin' out up on the trees;  
I seem to smell the perfume of the May-flowers in the breeze;  
I seem to feel the summer a-coming 'crost the hills;  
I seem, up in the pastur', to hear the singin' rills;  
I see the mowin' lot, an' hear the sharpenin' of the blades;  
I hear the cattle lowin'; I go berryin' in the glades;  
I smell the harvest ripenin' over in the corner lot;  
I see Josiah bringin' home that last new pair he bought;  
I remember how together, when the children went away—  
Grown big an' married—by the fire we sat at close of day;  
An' how together we had lived there fifty year—come fall.  
I wisht Josiah'n' me was back—a-workin' hard an' all.

It's sugarin'-time up country; but never once again  
Shall I, now goin' on eighty, see the spring a-comin' in  
The old way, thro' the maple trees, 'crost the pastur's brown;  
For I must stay—in sugarin'-time—on Beacon Street in town.  
The children never, as of old, shall I tuck in at night,  
Their little feet so tired, but their happy hearts so light.  
They wouldn't go back if they could, an' I'm too old, they say;  
An' sence Josiah isn't there, I let 'em have their way.

It's sugarin'-time up country, though, an' memories, like the sap,  
Start up an' set me longin' for Mother Natur's lap—  
An' him, an' Jim,—the farm, the hens, the horses in the stall.  
It's sugarin'-time up country; I'm homesick—that is all.

### THE SUGARING OFF.

Will Carleton, in Everywhere

You'd hardly ever think it, sir,  
That this big city now astir  
With every rattling noisy thing  
With twentieth century thought to bring,  
With roofs a-shuttin' out the sky,  
An' trolley-wagons skippin' by,  
An' wires a-dodgin' here and there,  
For folks to whisper through the air.  
An' factories at the daylight's gleam  
A-blowin' loud their horns o' steam,  
You'd hardly ever think, I say,  
A-reasonin' round the usual way,  
That here, instead o' things like these,

Was once a grove of maple trees,  
An' under yon electric lamp  
We used to run a sugar camp?

One star-lit night—it seems, you know,  
About a year or two ago,  
But when you come to count it square  
It's fifty of 'em, I declare—  
We gathered on my father's lands,  
'Bout where that market wagon stands;  
Us younger folks each other found  
From wooded regions all around,  
An' then with genuine laugh and smile,  
We sugared off in country style!

Since then, these memory hallowed spots  
Are fenced up into city lots;  
The farm is raisin' spires and domes,  
Where once the maples had their homes;  
Big feasts are given, rich and rare,  
Of which, I own, I have had my share,  
But nothin' ever tasted quite  
So good, as on that star-lit night!

An' when the sap was boilin' there  
Till we could taste it in the air,  
We wood-land boys with hearts awirl,  
Each took a cupful to his girl,  
An' cuddled down with her an' ate,  
With just the white snow for a plate.  
You see that first-class candy-shop  
Up yonder where them school girls stop?  
They've gathered sweet-meats there that's worth  
As much as any now on earth;  
But they've got nothin' that's in sight  
Of what we ate that winter's night.

An' up on Woodland Avenue,  
A young, old lady, kind an' true,  
With han'some tresses gray enough,  
But still on earth, an' "up to snuff,"  
Will tell you, when we go that way,  
(If she hasn't changed her mind today)  
That, though the years have brought her nigh  
All earthly good that cash can buy,  
She'd give them all for that one night,



MAPLE SUGAR AND SYRUP CONTAINERS

When, from the sap fire's fadin' light,  
We wandered homeward side by side,  
An' kindled flames that never died,  
An' felt confession's sudden charm,  
An' slowly walkin' arm-in-arm,  
With no one there to laugh or scoff,  
Just had a private sugarin'-off.

\*



## RECIPES FOR USING MAPLE SWEETS IN COOKING; HOME CANDY MAKING, ETC.

### Maple Rolls.

One quart of bread dough, when it is moulded for the last raising, mould in a cup of maple sugar,  $\frac{1}{4}$  teaspoonful of soda, 1 tablespoon of butter. Let it rise and mould again and cut out, rise and bake. These are very nice.

### Quick Tea Rolls.

One egg,  $\frac{1}{2}$  cup maple sugar, 3 teaspoons of baking powder in flour enough to make a rather stiff batter,  $\frac{1}{3}$  cup of butter, 1 cup milk. Bake in hot gem pans in a hot oven.

### Maple Breakfast Rolls.

One egg,  $\frac{1}{2}$  cup each of milk and cream, 2 teaspoons baking powder, 3 teaspoons granulated maple sugar, add flour till about as thick as griddle cakes.

### Fritters.

Three eggs, 1 tablespoonful sweet cream,  $\frac{1}{2}$  teaspoonful salt, 2 cups of sweet milk, 2 teaspoonfuls baking powder, about 4 cups of flour. Mix the baking powder thoroughly with the flour, add the flour to the milk, add the salt, then the eggs well beaten. Fry in hot lard. Serve hot, with warm maple sap syrup.

### Baked Apples.

Pare and core some good tart apples, put them in a shallow earthen dish; fill the center where the core has been taken out with granulated maple sugar, add water to cover bottom of dish. Bake in a moderate oven until soft, basting often with the syrup.

### Maple Apple Pie.

For one pie:  $\frac{3}{4}$  cup of lard, 3 or 4 good sour apples which have been pared and sliced,  $1\frac{1}{2}$  cups of flour,  $\frac{1}{2}$  teaspoonful salt, 1 cup maple sugar. Mix the lard, flour and salt thoroughly, add just enough cold water to work it lightly together; the less you handle pie crust the better it is—just enough to get it into shape to roll. Roll and put on plate, spread the apple and add the sugar. Bake in a moderate oven.

### Apple Pudding.

One layer of wheat bread sliced thin, 1 layer of sliced apples, put on another layer of bread and apple and so on alternately until the dish is full; flavor with lemon, pour over all two teaspoons water; cover and bake one-half hour. To be eaten with maple syrup.

### Berry Pudding.

One pint flour, 1 teaspoon cream of tartar,  $\frac{1}{2}$  teaspoon of soda, milk enough to make a little thinner than biscuit, add 1 pint of berries; boil 1 hour.

The sauce (served hot): 1 cup maple sugar,  $\frac{2}{3}$  cup of hot water, 1 tablespoonful of flour, butter size of an egg.

Let come to a boil, then pour it over a well beaten egg, stirring the egg. Flavor.

### Maple Sugar Cake.

One-half cup of butter,  $\frac{1}{2}$  cup of milk,  $\frac{1}{2}$  teaspoon soda, whites of 5 eggs, 1 cup of maple sugar, 2 cups of flour, 1 teaspoon cream of tartar. Beat the butter to a cream, then gradually add the sugar and stir until light and creamy, then add the milk, then the whites of eggs which have been beaten to a stiff froth, last the flour in which the soda and cream of tartar have been thoroughly mixed. Bake in three layers in a quick oven. To be frosted with maple sugar frosting.

### Nut Cake.

One cup maple sugar, 2 cups of flour, 1 cup of chopped raisins, 3 teaspoonfuls of baking powder,  $\frac{1}{2}$  cup of sweet milk, 2 eggs, 1 cup of chopped English walnuts,  $\frac{1}{2}$  cup of butter.

Beat the butter to a cream, add the sugar gradually, and when light add the eggs well beaten, then the milk, and last the flour in which the baking powder has been thoroughly mixed. Mix this quickly and add the nuts and raisins. Bake in rather deep sheets in a moderate oven about 35 minutes.

### Marble Cake.

Yolks of 4 eggs,  $\frac{1}{2}$  cup of butter, 1 teaspoonful of soda,  $1\frac{1}{2}$  cups flour,  $\frac{1}{2}$  cup of maple molasses,  $\frac{1}{2}$  cup sour cream, spices of all kinds.

For the light part: Whites of 4 eggs beaten to a froth,  $\frac{1}{2}$  cup of butter,  $\frac{1}{2}$  teaspoon of cream tartar,  $\frac{1}{2}$  cup of flour, 1 cup of white sugar, 2 tablespoons of sweet milk, in which dissolve  $\frac{1}{2}$  teaspoon of soda.



THE END OF THE SUGAR SEASON

**Apple Cake.**

One cup thinly sliced sweet apples cooked until transparent (in one cup maple sugar, and water to make a good syrup); when cool, add 1 cup dry maple sugar, 2 eggs, 1 heaping teaspoonful mixed spices,  $\frac{1}{2}$  cup of butter,  $\frac{1}{2}$  cup of cream, 1 teaspoonful soda, flour till the spoon will stand in the middle without falling.

**Shrove Tuesday Cake.**

One quart of milk, 3 cups of flour,  $\frac{1}{2}$  teaspoonful of salt, 2 eggs, 3 teaspoonfuls of baking powder.

Mix the baking powder thoroughly with the flour, add the flour to the milk, add the salt, then the eggs, well beaten. Fry on a hot griddle in large cakes. Butter and spread with maple sugar in layers until you have a plate four or five inches high. Cut in pie shape and serve hot.

**Maple Sugar Cream Cake.**

One cup of maple sugar, 1 egg,  $\frac{1}{2}$  teaspoonful of salt, 1 cup sour cream,  $1\frac{1}{2}$  cups of flour, 1 teaspoonful soda.

Add the soda to the cream, when it foams add the egg well beaten; next, the sugar and salt, last the flour. Bake in a quick oven.

**Maple Sugar Frosting.**

One-half cup maple sugar,  $\frac{1}{2}$  cup granulated sugar,  $\frac{1}{4}$  cup of water. Boil until it will hair from a spoon. Stir briskly into the beaten white of an egg. Beat until cool enough to spread.

**Ginger Snaps.**

1. Two cups maple sugar, 1 cup sour cream, 1 teaspoonful soda, flour enough to make a stiff paste, 1 cup butter, 2 eggs, 2 tablespoonfuls ginger.

Roll thin and bake quick.

2. One cup maple molasses, 1 teaspoonful each of soda and ginger,  $\frac{2}{3}$  cup butter, mix hard and roll thin.

**Maple Sugar Cookies.**

Two cups of maple syrup, 1 cup of sweet milk, flour enough to roll—about 5 cups, 1 cup of butter, 2 teaspoonfuls of baking powder, 4 eggs.

Beat the sugar and butter to a cream, add the eggs well beaten, add the milk, next the flour in which the baking powder has been well mixed. Roll and cut in any form to suit the taste. Bake in a moderate oven.

**Maple Sugar Gingerbread.**

One cup of maple syrup, 2 cups of flour,  $\frac{1}{2}$  teaspoonful salt, 1 teaspoonful soda, 1 cup of sour cream, 1 egg, 1 teaspoonful ginger.

Add the soda to the cream; when it foams add the egg well beaten, then the maple syrup, salt and ginger; last add the flour. Bake in a quick oven.

**Maple Syrup Made from Sugar.**

One pound maple sugar, 1 pint of water, boil ten minutes, skim and cool.

**Maple Sugar Ice Cream.**

One quart cream, 2 cups maple sugar, 2 eggs, 1 pint of milk,  $\frac{1}{2}$  cup of flour, scant.

Let the milk come to a boil. Beat one cup of sugar, flour and eggs until the mixture is light and creamy, then stir into the boiling milk; cook until the flour is thoroughly cooked. Set away to cool. When cold whip the cream, add the other cup of sugar and turn into the cooked mixture and freeze.

**Mince Meat. (Very Nice.)**

One quart of chopped beef,  $\frac{1}{2}$  pound of suet, 1 cup of butter, 1 pint of molasses, 2 quarts of chopped apples, 2 cups of raisins, 2 pounds of maple sugar, 1 tablespoonful each of cloves, allspice and cinnamon.

Boil slowly in 2 quarts of sweet cider two or three hours, being careful not to let it burn.

**Maple Sweet Pickles.**

Seven pounds fruit, 1 pint best maple or cider vinegar, 1 tablespoonful ground cinnamon, 3 pounds of maple sugar, 1 teaspoonful ground cloves, 1 teaspoonful ground allspice. Boil

until the fruit is tender. This is excellent for plums, pears, peaches or cucumbers.

#### **Maple Sugar on Snow.**

For preparing maple sugar for eating on snow, either sugar or syrup may be used, but the syrup, if obtainable, is best. Boil the syrup until, when dropped on snow, it remains on the surface and becomes waxy, then spread it upon the surface of the snow or a block of ice. If the sugar is used, add a little water and melt it, being careful not to burn, and treat in the same manner as the syrup. This will be found, as every sugar maker knows, one of the most delicious treats obtainable.

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### **CANDY.**

#### **Maple Taffy.**

Place together in the kettle, 2 pounds of maple sugar, 1 pound of brown sugar,  $\frac{1}{2}$  pound of glucose and 1 pint of water, and stir until the mixture is dissolved. Boil until the taffy will snap when tested in cold water, then pour it upon a buttered dish or slab to cool. The candy may be checked off in squares, or, if preferred, it may be pulled until white.

#### **Maple Candy.**

Three cups sugar, 1 cup syrup,  $\frac{1}{2}$  cup water. When it comes to a boil put in one large spoonful of vinegar,  $\frac{1}{4}$  teaspoonful of cream of tartar, 1 lump of butter the size of a walnut. Boil until brittle when dropped into cold water. Pull until light and dry.

Two cups maple honey, 1 cup sugar,  $\frac{1}{4}$  teaspoonful soda, lump of butter half as big as an egg. Boil until brittle when dropped in water, and then take off and cool on plates. When cold, pull and cut up.

Two cups maple sugar,  $\frac{1}{2}$  cup of water, 1 tablespoonful vinegar. Boil until it will be crumpy when dropped in cold water. Turn on buttered plates; when cool enough, pull and cut into sticks.

#### **Maple Cream without Cream.**

No. 1. Place in a batter bowl the whites of two eggs and two cups of the best maple syrup. Whip these together with an egg-beater or fork, and then throw in enough XXX confectioners'

sugar to thicken sufficiently to mould into shapes. Coat with either chocolate or plain cream.

No. 2. Mix two pounds of maple sugar, a fourth of a teaspoonful of cream of tartar and a cup of water, and boil until a little of the syrup will form a "soft ball" when tried in water. Set it away in the kettle until almost cold, and then work it with the paddle until it becomes creamy or cloudy, when pour immediately into a shallow tin pan. When cold, turn the pan upside down, when the cream will drop out. Divide into blocks.

#### **Maple Cream.**

Two cups of maple sugar, one-half cup of cream. Let it boil until it hairs then stir in one cup of nuts, butternuts preferable. Pour into buttered tins and when nearly cold cut in squares.

#### **Maple Sugar Fudge.**

Two cups of white sugar, one cup of maple sugar, two-thirds cup of sweet milk. Cook twelve minutes after it begins to boil. Remove from the stove and add a piece of butter size of a walnut and 1 cup of walnut meats. Stir until it thickens then pour into a buttered tin. When nearly cold cut in squares.

#### **Maple Sugar Candy.**

Two pint bowls maple sugar, 1 pint bowl white sugar, 1 pint bowl of water, two or three tablespoons whipped cream, one large coffee cup butternuts. Place kettle with the sugar and water in it on back of the stove until sugar is dissolved, then draw forward and boil until the soft ball stage is reached (being careful not to stir the sugar after it commences to boil). Remove to a cool place until nearly cold before stirring. When partly grained add whipped cream, turn into tins and set in a cool place to harden.

#### **Nut Candy.**

Nice maple sugar with sufficient water to dissolve it, 1 tablespoonful of vinegar to 2 pounds of sugar, and butter size of walnut. Boil until very hard when tried in water. Pour immediately into a buttered pan in which the nuts have been placed. Cut into sticks before cold.

#### **Maple Opera Caramels.**

Measure a cup and a half each of coffee and maple sugar, one cupful of cream, and a fourth of a small teaspoon of cream of tartar, and boil the cream and sugar together, adding the

cream of tartar, wet with a little cream, as soon as the syrup reaches the boiling point. Cook until a drop of syrup, lifted out on the point of a skewer and dropped into very cold water, may be rolled into a soft, creamy ball between the fingers. Care must be taken to stir the syrup incessantly, and also that the bottom of the pan or kettle does not come into direct contact with the fire, as the cream is very apt to scorch. When done, remove from the fire, flavor, and pour on a slab, sprinkled with a very little water. When cold, cream the candy as directed for fondant, and as soon as perfectly smooth, form into a sheet half an inch thick, using the rolling pin. Let it remain on the slab a few hours, when divide into strips and wrap in paraffine paper.

#### **Maple Molasses Cocoanut Squares.**

Place in the kettle a scanty cupful of new maple molasses and a tablespoonful of butter, and, when boiling add a grated cocoanut. Cook over a slow fire, stirring until done. As soon as the hot candy will harden when dropped into cold water; pour it out upon a well buttered slab; and when hardened sufficiently cut it into squares and wrap in paraffine paper.

#### **Pulled Taffy.**

Take three cupfuls of dry maple sugar, a cupful of vinegar and water in equal parts (one-third vinegar and two-thirds water may be used if the vinegar is very strong) and a piece of butter the size of a walnut. Boil the sugar, water and vinegar together until half done, then add the butter, stirring only enough to incorporate the butter thoroughly, and boil until done. Drop a little of the candy now and then into cold water and test by pulling it apart; if it snaps it is done and must be immediately poured upon a buttered dish to cool. Flavor with a little vanilla extract poured upon the top. When the taffy has cooled sufficiently to handle, it may be pulled, cut into short lengths and placed on buttered dishes or paraffine paper.

#### **Popped Corn and Nut Candy.**

Take a tablespoonful of butter, three of water and one cupful of maple sugar; boil until it is ready to candy and then add three quarts of nicely popped corn. Stir briskly until the mixture is evenly distributed over the corn. Keep up the stirring until it cools when each kernel will be separately coated. Close and undivided attention may be necessary to the success of this kind of candy. Nuts are delicious prepared by this method.



VT COLL 48

## HOW VERMONT MAPLE SUGAR IS MADE

**Horehound Candy.**

To a quart of water add a small single handful of horehound herbs and boil for about half an hour. Strain and press all the liquor from the herbs. Place on the fire and add to this liquid three pounds of maple sugar. When it boils add half a teaspoonful of cream of tartar. Test, and when it reaches the "hard crack" or 290 degrees, add a piece of butter as large as a hulled walnut. When the butter is dissolved, pour the whole mass on a marble slab or onto a greased platter. When almost cold mark into squares with a knife.

**Molasses Candy.**

Two cups of maple molasses, 2 teaspoonfuls of butter, 1 cup of maple sugar,  $\frac{1}{2}$  cup of water.

Boil all together until done,—be careful not to stir while cooking. When done, pull.